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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,772	01/26/2004	Gabe Cherian		2451
39574	7590	01/08/2008		
GABE CHERIAN P.O. BOX 1335 SUN VALLEY, ID 83353			EXAMINER NGUYEN, HOA CAO	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 01/08/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/765,772

Applicant(s)

CHERIAN, GABE

Examiner

Hoa C. Nguyen

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 59-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 59-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The request filed on 8/14/07 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 10/765772 is acceptable and a RCE has been established. An action on the RCE follows.
2. The amendment filed 9/15/07 has been entered. Claims 1-58 are cancelled. Claim 59-76 are new claims.

Claim Objections

3. Claims 59-62 and 68-71 are objected to because of the following informalities:
 - (a) Claim 59, lines 8-9: The "each respective said attachment pad" must be changed to --each respective one of said at least two or more attachment pads.
Appropriate correction is required.
 - (b) Claims 60-62 are dependent claims of claim 59.
 - (c) Claim 68, line 9: The "each respective said attachment pad" must be changed to --each respective one of said at least two or more attachment pads.
Appropriate correction is required.
 - (d) Claims 69-71 are dependent claims of claim 68.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 59, 60, 62, 68, 69, and 71 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (US 6476505).

Regarding claim 59, as shown in figure 1, Nakamura discloses a substrate and attachment pad assembly comprising:

(a) a substrate 1 (semiconductor pellet, col.2:58-67) having a planar side surface;
and

(b) a group of attachment pads 2/3 (first and second rows of electric pads, col.2:58-67) for constituting connecting elements, formed on the planar side surface of the substrate;

(c) at least two of the attachment pads (arbitrarily selecting 2 pads in the outer rows, see Examiner remarks below), having an elongated shape (rectangular) and elongating in directions that are substantially perpendicular to individual rays (see Examiner remarks below), each such ray extending from a predetermined point (the center of the substrate 1) on the planar side surface of the substrate to substantially the center of each respective one of the at least two of the attachment pads; or in other words,

(d) the at least two of the attachment pads being arranged so as to have their respective short axes in a direction which extends radially from a predetermined point (the center of substrate 1) on the planar side surface of the substrate.

Examiner remarks: The Examiner arbitrarily selects two pads on the outer rows shown in figure 1. The first one is selected from the left most row located at number 8 counting from top. The second one is selected from the right most row located at

number 8 counting from top. These two pads are considered as having elongating side substantially perpendicular to the center point.

Regarding claim 60, as shown in figure 1, Nakamura discloses the predetermined point on the planar side surface of the substrate is located substantially at the center of the group of the attachment pads.

Regarding claim 62, as shown in figure 1, Nakamura discloses the elongated shape is a rectangular shape.

Regarding claim 68, as shown in figure 1, Nakamura discloses every limitation as shown in claim 59 above including a substrate and attachment pad assembly comprising:

- (a) a substrate 1 having a planar side surface; and
- (b) a group of attachment pads 2/3 for constituting connecting elements, formed on the planar side surface of the substrate 1;
- (c) at least two of the attachment pads (see Examiner remarks in claim 59 above) having an elongated shape (rectangular) and arranged so as to have long axes (the length of the rectangular) which extend in directions that are substantially perpendicular to individual rays, each ray extending from a predetermined point (center point of the substrate) on the planar side surface of the substrate to substantially the center of each respective one of the at least two attachment pads; or in other words,
- (d) the at least two of the attachment pads being arranged so as to have short axes (width side) which extend radially from a predetermined point (the center point of

the substrate) on the planar side surface of the substrate to substantially the center of each respective one of the attachment pads.

Regarding claim 69, as shown in figure 1, Nakamura discloses every limitation as shown in claim 60 including the predetermined point on the planar side surface of the substrate is located substantially at the center of the group of the attachment pads.

Regarding claim 71, as shown in figure 1, Nakamura discloses the elongated shape is a rectangular shape.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 61, 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura.

Regarding claims 61 and 70, Nakamura does not disclose the elongated shape is an oblong shape.

However, it would have been an obvious matter of design choice to change the shape of the pads from rectangular to an oblong shape, since such modification would have involved a mere change in shape of the pad. Furthermore, a change in shape is generally recognized as being within the level of ordinary skill in the art. *In re Dailly*, 149 USPQ 233.

8. Claims 63-67 and 72-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washino (US 5484963).

Regarding claim 63, as shown in figure 5, Washino discloses a substrate and attachment pad assembly comprising:

- (a) a substrate 11 (col.1:9-15) having a planar side surface; and
- (b) a group of attachment pads 13 (metallized pads, col.5:1-5 and col.8:4) formed on the planar side surface of the substrate 11 for connection with terminals of a mounting article (mounting an IC, col.1:9-15) which is to be mounted on the substrate;
- (c) each of the attachment pads 13, when observed in a plan view, having an elongated shape (oblong shape having long and short axis) and its short axis elongating in a direction that is substantially perpendicular to a respective individual ray (figure 1A), extending from a point (a center point located at reference 12 in the figure) which is located substantially at the center of the group of the attachment pads to a point near the center of the attachment pad with respect to its shape observed in a plan view; or in other words,
- (d) each of the attachment pads, when observed in a plan view, having its long axis in a direction which extends radially from a point which is located substantially at the center of the group of the attachment pads to a point near the center of the attachment pad with respect to its shape observed in a plan view.

Washino does not disclose each pad's long axis elongating in a direction that is substantially perpendicular to a respective individual ray (see figure 1A). However, if the pad is rotated 90 degrees, then the pad's long axis will eventually elongating in a

direction that is substantially perpendicular to the respective individual ray. Thus, it is merely a matter of rotating the pads.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange or rotate the pad such that the pad's long axis elongating in a direction that is substantially perpendicular to the respective individual ray in order meet a specific pitch requirement between row of pads (see Examiner remarks below). Furthermore, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Examiner remark: It is noted that when rotating Washino pads 90 degrees, then there will be more room between rows of pads, thus resulting a minimum spacing between rows of pads.

Regarding claim 64, Washino discloses the substrate is a ceramic substrate (see abstract).

Regarding claim 65, Washino discloses the mounting article is an IC device (col.1:9-15).

Regarding claim 66, Washino discloses the elongated shape is an oblong shape.

Regarding claim 67, Washino does not disclose the elongated shape is an rectangular shape.

However, it would have been an obvious matter of design choice to change the shape of the pads from rectangular to an oblong shape, since such modification would have involved a mere change in shape of the pad. Furthermore, a change in shape is

generally recognized as being within the level of ordinary skill in the art. *In re Dailly*, 149 USPQ 233.

Regarding claim 72, Washino discloses every limitation as shown in claim 63 above, including a substrate and attachment pad assembly comprising:

- (a) a substrate 11 having a planar side surface; and
- (b) a group of attachment pads 13 formed on the planar side surface of the substrate for connection with a mounting article (an IC) which is to be mounted on the substrate;
- (c) the attachment pads 13, when observed in a plan view, having an elongated shape (oblong shape) and arranged so as to have their short axes extending in directions that are substantially perpendicular to individual rays (figure 1A), each ray extending radially from a point (center point) which is located substantially at the center of the group of the attachment pads 13 to substantially the center of each respective attachment pad; or in other words,
- (d) the long axes of the attachment pads, when observed in a plan view, having being oriented in radial directions extending from a point which is located substantially at the center of the group of the attachment pads to substantially the center of each respective attachment pad.

Washino does not disclose each pad's long axis elongating in a direction that is substantially perpendicular to a respective individual ray (see figure 1A). However, if the pad is rotated 90 degrees, then the pad's long axis will eventually elongating in a

direction that is substantially perpendicular to the respective individual ray. Thus, it is merely a matter of rotating the pads.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to rearrange or rotate the pad such that the pad's long axis elongating in a direction that is substantially perpendicular to the respective individual ray in order meet a specific pitch requirement between row of pads (see Examiner remarks below). Furthermore, it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Examiner remark: It is noted that when rotating Washino pads 90 degrees, then there will be more room between row of pads, thus resulting a minimum spacing between rows of pads.

Regarding claim 73, Washino discloses the elongated shape is an oblong shape.

Regarding claim 74, Washino does not disclose the elongated shape is an rectangular shape.

However, it would have been an obvious matter of design choice to change the shape of the pads from rectangular to an oblong shape, since such modification would have involved a mere change in shape of the pad. Furthermore, a change in shape is generally recognized as being within the level of ordinary skill in the art. *In re Dailly*, 149 USPQ 233.

Regarding claim 75, Washino discloses the substrate is a ceramic substrate (see abstract).

Regarding claim 76, Washino discloses the mounting article is an IC device (col.1:9-15).

Response to Arguments

9. Applicant's arguments filed 8/14/07 have been fully considered but they are not persuasive.

Remarks, pages 1-16: The argument is mainly about that it is not obvious to rotate the pad 90 degrees. Applicant has disclosed a proof of evidence that it is an intensive calculation for rotating the pad 90 degrees in order to minimize the thermal effects caused by an IC.

The Examiner has no comment toward the intended of use by rotating the pads regarding the thermal effect, because it is merely an intended of use by the Applicant. However, in the case of product claim, only the structure of the claim distinguishes over the prior art.

It is noted that if an ordinary skill in the art rotates the pads of Washino 90 degrees in order to achieve a minimal space between rows of pads then the structure ends up the same structure claimed by the applicant. In this case, the intended of use is totally different from what disclosed by the applicant.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoa C. Nguyen whose telephone number is 571-272-8293. The examiner can normally be reached on M-F.

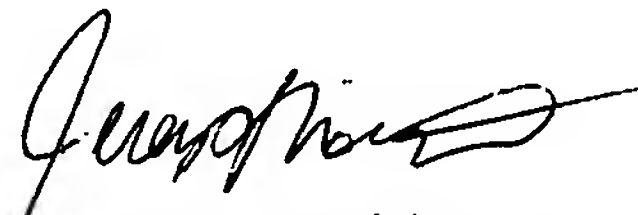
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hoa C. Nguyen


Jeremy C. Norris
Primary Examiner
AU 2841